

New Exotic Crane-Flies (Tipulidae: Diptera). Part XIII

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The preceding part under this title was published in *ENTOMOLOGICAL NEWS*, Vol. 77 (3): 69-78. At this time I am discussing further crane-flies from India belonging to the tribe Hexatomini, all collected by Dr. Fernand Schmid.

Limnophila (*Dicranophragma*) *anulosuffusa*, new species

General coloration of thorax brown, the praescutum with three more yellowish brown stripes; legs yellow, the femora with a narrow pale brown subterminal ring; wings whitened, with a very heavy dark brown pattern that includes markings in base of cell 2nd *A*.

♀. Length about 6 mm; wing 6-6.2 mm.

Rostrum and palpi brownish black. Antennae with scape dark brown, pedicel paler brown; first flagellar segment clear light yellow, the remainder dark brown. Head brown, faintly dusted with yellow pollen.

Pronotum brown. Mesonotal praescutum with the restricted ground dark brown, with three more yellowish brown stripes, pseudosutural foveae darkened; scutal lobes darkened, patterned with brown; posterior sclerites of notum darker brown, sparsely pruinose. Pleura brown, restrictedly patterned with darker spots. Halteres light brown, base of stem narrowly yellowed. Legs with coxae dark brown; trochanters obscure yellow, lower surface with a blackened apical spot; femora yellow with a narrow pale brown subterminal ring, the yellow apex slightly narrower; remainder of legs yellow. Wings with the restricted ground whitened, prearcular and costal fields more yellowed; a very heavy and conspicuous dark brown pattern, paler in cells *M*, *Cu* and the *Anal*s, the darkened pattern exceeding the

¹ Contribution from the Entomological Laboratory, University of Massachusetts.

whitened ground except in cells *C* and *Sc*; compared with *venustipennis*, with a darkened spot at tip of *Sc*₁ and a larger mark at near midlength of *Rs* in cells *R* and *R*₁; cell *1st A* suffused, cell *2nd A* with three more or less confluent brown spots at base and near midlength, without a subterminal darkening as in *venustipennis*. Venation: No spur near outer end of vein *2nd A* as in *venustipennis*.

Abdomen brownish black.

Habitat. INDIA (Assam). *Holotype*: ♀, Sirhoi Kashong, Manipur, 6,000 feet, June 8, 1960 (Fernand Schmid). *Paratype*: ♀, pinned with type.

Limnophila (*Dicranophragma*) *anosuffusa* is quite distinct from other known species, especially in the wing pattern. The closest relative appears to be *L. (D.) venustipennis* Alexander (*pulchripennis* Brunetti, 1912, preoccupied) which differs in the characters outlined above.

Limnophila (*Dicranophragma*) *karma*, new species

Generally similar to *venustipennis*; wings of male broadest opposite termination of vein *2nd A*, of female opposite vein *1st A*; no spur near tip of vein *2nd A* nor a darkened cloud before outer end of this cell.

♂. Length about 5–5.5 mm; wing 5.5–6 mm; antenna about 1 mm.

♀. Length about 6.8–7 mm; wing 6.2–6.5 mm.

Rostrum black, pruinose, mouthparts and palpi black. Antennae relatively short, the basal four segments yellow, outer ones brown; in male the proximal and intermediate flagellar segments with long verticils, the longest exceeding three times the segment. Head light gray in front, darker gray behind.

Pronotum with scutum brown, the scutellum much paler. Mesonotal praescutum with three pale brownish gray stripes, the intervening interspaces reduced to narrow brown lines, with further linear or triangular sublateral brown darkenings; pseudosutural foveae black, conspicuous, tuberculate pits paler, contiguous; scutal lobes brown, posterior sclerites brown, more or

less pruinose. Pleura brown, with a dark brown longitudinal stripe over the dorsal sclerites from the cervical region to the postnotum. Halteres with stem yellow, knob pale brown. Legs with coxae and trochanters brownish yellow; femora yellow, tips narrowly whitened, preceded by a subequal pale brown ring; remainder of legs yellow, outer tarsal segments darker. Wings of male broadest opposite termination of vein *2nd A*, in female much narrower, broadest opposite vein *1st A*; general coloration pale yellow, prearcular and costal fields clearer yellow; a conspicuous brown pattern that includes five costal areas, behind attaining vein *M* or beyond, the third at *Sc*₂, the fourth at stigma, converging behind over the anterior cord; a more or less complete brown subterminal band from outer end of cell *R*₂, crossing the supernumerary crossvein and outer fork of *M* to the margin at vein *M*₃; all longitudinal veins excepting *R*₅ with an oval brown marginal spot, on *2nd A* in cases more submarginal in position; no preapical darkening in cell *2nd A*, as in *venustipennis*; cord and outer end of cell *1st M*₂ seamed with brown; microscopic darkenings at *h* and across the veins that comprise the arculus; a paler brown wash occupying much of cell *M* and basal half of cell *Cu*; veins light yellow, light brown in the patterned areas, still darker in the heavier markings. Venation: Supernumerary crossein in cell *R*₃ about equal to or longer than vein *R*₃ beyond it; no spur on vein *2nd A* as in *venustipennis*.

Abdomen dark brown, hypopygium with proximal ends of basistyles obscure yellow.

Habitat. INDIA (Kumaon). *Holotype:* ♂, Tarak Tal, Pauri Garhwal, 7,540 feet, August 14, 1958 (Fernand Schmid). *Allotopotype:* ♀. *Paratopotypes:* 6 ♂ ♀; *paratype:* 1 ♀, Dhar, Pauri Garhwal, 7,220 feet, August 17, 1958.

Limnophila (Dicranophragma) karma agrees with *L. (D.) venustipennis* Alexander in the faintly indicated dark ring on the femur and in the general distribution of the dark pattern of the wings. In the present fly vein *2nd A* is unbranched in both sexes and the subterminal darkened band in cell *2nd A* is lacking.

Limnophila (*Dicranophragma*) *kashongensis*, new species

General coloration of mesonotum brownish black, the praescutum with three light brown discal stripes; pleura obscure brownish yellow with a conspicuous dark brown dorsolongitudinal stripe; legs pale brown; wings light brown with a diffuse darker brown pattern that includes six larger costal areas.

♂. Length about 5–6 mm; wing 5.5–7 mm; antenna about 0.8–0.9 mm.

♀. Length about 7–7.5 mm; wing 6.5–7 mm.

Rostrum brown, palpi black. Antennae with proximal segments obscure yellow, the outer ones brown, the segments with long verticils. Head brown, the anterior orbits paler.

Pronotal scutum brown, scutellum and pretergites yellowed. Mesonotal praescutum with the ground brownish black, the disk with three light brown stripes, the central one more yellow pollinose, pseudosutural foveae black; posterior sclerites of notum dark brown. Pleura obscure brownish yellow, with a conspicuous dark brown dorsolongitudinal stripe extending from cervical region, across the propleura and dorsal mesopleura to beneath the wing root on the pteropleurite; ventral sternopleurite and meron paler brown. Halteres with stem obscure yellow, clearer at base, knob pale brown. Legs with all coxae and trochanters obscure yellow; remainder of legs yellowish brown to very pale brown, the femoral bases vaguely clearer yellow. Wings with the ground light brown with about six larger and darker diffuse costal areas that are subequal in extent to the light yellow interspaces, the areas placed at h , above the arculus, origin of Rs , near end of Sc , stigma and the tip of R_3 ; vague paler brown areas cover the cord, outer end of cell $1st\ M_2$ and the prearcular field; vague transverse ground bands immediately before wing tip, at near midlength of cells beyond cord and more broadly at near midlength of wing before the cord; veins light brown, slightly darker in the patterned areas, light yellow in the costal interspaces. Venation: Sc_1 ending shortly beyond fork of Rs , Sc_2 slightly removed, Sc_1 alone nearly equal to R_{2+3+4} ; supernumerary crossvein in cell

R_3 lying far distad; petiole of cell M_1 subequal to or slightly longer than the cell; $m-cu$ at or before midlength of M_{3+4} .

Abdomen dark brown, the lateral borders and outer segments more brownish black. Male hypopygium with the outer dististyle very slender, the tip bifid; inner style very broad at base. Phallosome large, darkened; interbasal blades large.

Habitat. INDIA (Assam). *Holotype:* ♂, Sirhoi Kashong, Manipur, 7,500 feet, July 13, 1960 (Fernand Schmid). *Allotopotype:* ♀, pinned with type. *Paratopotypes:* numerous ♂ ♀, July 11–13, 1960.

Limnophila (Dicranophragma) kashongensis is quite distinct from all other Oriental members of the subgenus in the wing pattern. No other species has the darkened ground with diffuse darkened clouds as described above.

Limnophila (Eloeophila) perdilata, new species

Size large (wing of male 9 mm); femora light yellow with a medium brown subterminal ring; wings of male dilated opposite the termination of vein $2nd A$, conspicuously spotted and dotted with brown, all such areas restricted to the vicinity of the veins; male hypopygium with the outer dististyle expanded outwardly, terminating in a slender curved spine, the lateral flange conspicuous, yellow, the apex subtruncate.

♂. Length about 8.5 mm; wing 9 mm.

Rostrum dark brown; palpi black. Antennae with scape and pedicel brownish black, proximal five or six flagellar segments light yellow, the succeeding ones darker; proximal segments more enlarged and without setae on lower surface. Head yellowish gray, center of vertex brown.

Thorax yellowish gray, the praescutum restrictedly patterned with dark brown streaks and spots, representing the remains of darkened stripes; scutal lobes vaguely patterned; posterior third of mediotergite slightly more darkened. Pleura gray, patterned with dark brown. Halteres with stem yellow, knob dark brown. Legs with coxae brownish gray; trochanters light brown; femora light yellow with a medium brown subterminal ring, the tip

brownish yellow; tibiae and tarsi yellow, the outer segments slightly darker. Wings whitened, with a heavy brown spotted and dotted pattern, including a nearly complete crossband at the level of origin of R_s and a broader area over the region of the stigma and anterior cord; a further extensive darkening at wing tip, including much of cells R_5 and M_1 ; a series of about eight additional transverse lines in cells C and Sc ; remaining darkened pattern extensive, consisting of transverse areas and circular dots in all cells, least so in R and R_1 and beyond the stigma, all such markings being restricted to the vicinity of the veins and commonly occurring on both sides; veins brown, clear light yellow in the ground areas, most evidently so in the pre-arcular field and in outer radial field. Wings conspicuously dilated opposite termination of vein $2nd A$. Venation: Supernumerary crossvein in cell M oblique.

Abdomen brown, the hypopygium more brownish yellow. Male hypopygium with the outer dististyle narrowed at base, dilated outwardly, terminating in a long curved spine, the lateral flange conspicuous, light yellow, surface longitudinally striate, tip subtruncate.

Habitat. INDIA (Sikkim). *Holotype:* ♂, Lachen, 8,900 feet, June 13, 1959 (Fernand Schmid).

In its major size the present fly suggests *Limnophila (Elocephila) ornata* (Brunetti) being readily separated by the very different wing pattern.

Limnophila (Elocephila) pluriguttula, new species

Size medium (wing under 7 mm); mesonotum gray, the praescutum patterned with medium and dark brown; pleura brownish black, variegated by yellowish gray areas; femora yellow, tips extensively brown; wings with the ground pale yellow, very heavily patterned with brown spots and dots, the dark color exceeding the ground in area; dots in all cells confluent to form an irregular pattern.

Sex? Length about 6.5 mm; wing 6.8 mm; antenna about 1.3 mm.

Rostrum and palpi brownish black. Antennae with the more proximal flagellar segments weakly bicolored, the bases of the segments brown, their apices paler, obscure yellow, outer segments uniformly infuscated. Head brown.

Pronotum brownish gray. Mesonotal praescutum with the ground gray, with a pair of brown intermediate stripes and brownish black sublateral areas, the posterior ends of the interspaces similarly brownish black, the lateral borders brown; scutum yellowish gray, the lobes extensively dark brown; scutellum and postnotum brownish black. Pleura brownish black, variegated by yellowish gray areas. Halteres with stem obscure yellow, knob brownish black. Legs with coxae blackened; trochanters obscure yellow, the lower face blackened; femora yellow, tips extensively brown; tibiae and tarsi yellow, the last segment darker. Wings with the restricted ground pale yellow, very heavily patterned with brown spots and dots, the darkened areas exceeding the pale ground in amount; prearcular field light yellow; major brown spots over the stigma and cord and as a broken band at origin of *Rs* and the supernumerary cross-vein; other cells with abundant smaller spots and confluent brown dots, with virtually none of the marks disconnected into separate units, as in *bicolorata*; veins brown, yellow in the costal interspaces.

Abdomen partly destroyed by fungi; basal segments obscure yellow, their lateral and posterior borders brownish black.

Habitat. INDIA (Sikkim). *Holotype:* Sex? Yagtang, 11,650 feet, in *Rhododendron* association, June 17, 1959 (Fernand Schmid).

The most similar regional species is *Limnophila (Elocophila) bicolorata* Alexander, from lower altitudes in Nepal. The present fly is most readily told by the nature of the darkened wing pattern, including very abundant almost uniformly confluent brown dots which in *bicolorata* are chiefly isolated in the ground.

Limnophila (Eloeophila) fumigata, new species

Size medium (wing of male to 7 mm); antennae brownish black; thorax chiefly dark brown, the praescutum and pleura

patterned; legs yellow, the femora with a broad black terminal ring; wings yellow, very heavily patterned with brown, including diffuse spots in the cells; male hypopygium with very long setae on mesal face of basistyle; phallosome with gonapophyses narrow, tips pointed.

♂. Length about 6.5–6.7 mm; wing 6.5–7 mm; antenna about 1.8–1.9 mm.

Rostrum black, gray pruinose, with long black setae; palpi black. Antennae of holotype brownish black with extreme tips of the proximal flagellar segments vaguely yellowed; terminal segment slightly more than one-half the penultimate. Head yellowish gray, the center of vertex, posterior orbits and genae slightly patterned with brown.

Pronotum light gray, restrictedly patterned with brown, more extensive laterally. Mesonotal praescutum yellowish gray with a conspicuous dark brown pattern that includes a pair of long intermediate stripes, shorter sublateral areas, broader lateral borders, a median spot at cephalic margin and further darkenings near the suture; posterior sclerites of notum dark brown, sparsely yellow pollinose. Pleura dark brown, with two narrowly interrupted longitudinal gray stripes, the narrower lower line crossing the dorsal sternopleurite and meron. Halteres with stem dusky, narrowly yellowed at base, knob dark brown. Legs with coxae dark brown, sparsely yellow pollinose; trochanters brownish yellow; femora yellow with a broad black terminal ring that is vaguely paler at outer end; remainder of legs yellow, the outer tarsal segments slightly infuscated. Wings with the restricted ground yellow, heavily patterned with brown, the amount of dark color more than twice the yellow areas, prearcular field chiefly darkened; broad dark bands at origin of *Rs* and the cord, with narrower areas more basally in the costal field; beyond the cord the cells extensively darkened, including all of M_1 ; the interpolated yellow ground areas further interrupted by very extensive smaller marks that tend to be confluent, their borders ill-defined; veins yellow in the ground, brown in the patterned areas. Venation: *m-cu* before one-third the length of M_{3+4} .

Abdomen dark brown to brownish black, the hypopygium slightly paler. Male hypopygium with outer half of mesal face of basistyle with several very long delicate setae. Outer dististyle expanded outwardly, the outer apical angle a slender curved hook; lateral flange narrow, applied to margin of style, the outer end free; border beyond the flange microscopically serrulate; inner style outwardly narrowed to an obtuse point. Phallosome with aedeagus small, slender; apophyses somewhat shorter, appearing as narrow pale blades, their tips acute.

Habitat. INDIA (Assam). *Holotype:* ♂, Sirhoi Kashong, Manipur, 7,500 feet, July 11, 1960 (Fernand Schmid). *Paratopotype:* 1 ♂, with the type.

Limnophila (Elocophila) fumigata is generally similar to *L. (E.) bicolorata* Alexander, *L. (E.) fascipennis* (Brunetti), and *L. (E.) pluriguttula*, new species, differing from all in the unusually heavy wing pattern and in the antennal coloration. Of the above the male sex is known only in *fascipennis* where it is quite different from the present fly.

Notes on the Genus *Neodiplocampta* Curran and Certain Other Bombyliidae. Part I

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So far as I am aware only two species have been placed in the genus *Neodiplocampta*, Curran. These are the genotype species *roederi* Curran from Porto Rico, the wing figured by Curran (1934), and the species *paradoxa* Jaenicke. As I have before me six species none of which can be those named above I include notes and descriptions on some of these as a preliminary to the preparation of an illustrated key to species.

Neodiplocampta (Agitonia) sepia n. sp.

A large species with large, quite broad wings which are almost wholly sepia save for faint hyaline areas in the marginal and posterior cells.